Name: Date:
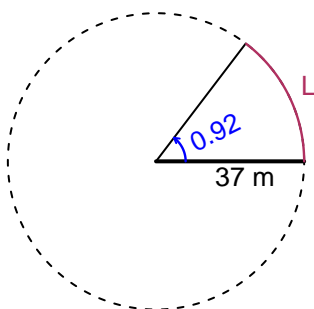
Trig Final (Practice v20)

- You can use a calculator (like Desmos)
- You should have a unit-circle with special angles and coordinates marked.

Question 1

In the figure below, we see a circle and a central angle that subtends an arc. The radius is 37 meters. The angle measure is 0.92 radians. How long is the arc in meters?
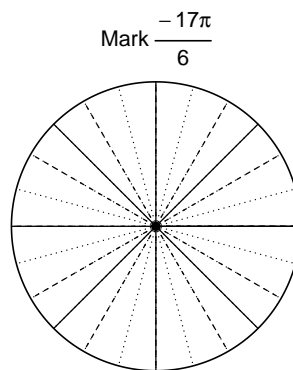

Question 2

Consider angles $\frac{11\pi}{4}$ and $\frac{-17\pi}{6}$. For each angle, use a spiral with an arrow head to **mark** the angle on a circle below in standard position. Then, find **exact** expressions for $\sin\left(\frac{11\pi}{4}\right)$ and $\cos\left(\frac{-17\pi}{6}\right)$ by using a unit circle (provided separately).

Mark $\dfrac{11\pi}{4}$

Find sin(11π/4)

Mark $\dfrac{-17\pi}{6}$

Find cos(−17π/6)

1
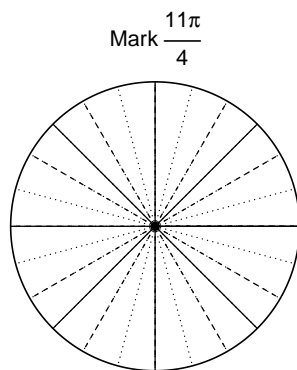
Question 3

If $\cos(\theta) = \frac{11}{61}$, and θ is in quadrant IV, determine an exact value for $\sin(\theta)$.

Question 4

A mass-spring system oscillates vertically with a frequency of 8 Hz, a midline at $y = 3.27$ meters, and an amplitude of 5.06 meters. At $t = 0$, the mass is at the maximum height. Write an equation to model the height (y in meters) as a function of time (t in seconds).